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—BY—

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A CASE OF FATAL EAR DISEASE BEGINNING AS A CIRCUMSCRIBED INFLAMMATION IN THE OUTER HALF OF THE EXTERNAL AUDITORY CANAL.

By Charles J. Kipp, M. D., *Newark, N. J.*

Mrs. U., aet. 28, consulted me for the first time in May, 1884. Her history was as follows: About four months ago she gave birth to a living child and made a pretty rapid recovery. Since that time she has had frequent attacks of severe pain in and about the left ear, each lasting a number of days. Various remedies were prescribed for her, none of which has, however, given her permanent relief. She has never had otorrhœa, and her hearing, even during the attacks of pain, has never been much impaired.

On examining her *left ear* I found the walls of the outer half of the external auditory canal considerably swollen and red; the inner half of the canal was of normal dimensions and its integument but little reddened. The drum-membrane was greyish, opaque and sunken; its dermoid layer slightly macerated. The Eustachian tube was easily permeable; inflation through the catheter caused bulging of the drum-membrane, especially of its upper posterior quadrant. No perforation noise was heard and there was no evidence of a free exudation in the tympanic cavity. The integument over the mastoid process was entirely normal, and percussion of the mastoid gave no pain.

The functional examination made after the inflation showed that the watch and the voice were heard very near-

ly as well with this ear as with the healthy ear. Tuning forks placed on the vertex were heard equally well on both sides.

Believing the disease to be a furuncular inflammation of the external auditory canal, I gave a favorable prognosis, and advised the application of leeches in front of the tragus and under the ear, and of pledgets of lint soaked in a warm solution of morphine in the meatus.

A week later I saw the patient again. She reported that the pain had subsided, and on examination I found that the swelling and redness of the external canal had nearly disappeared. The hearing was normal.

During the following week another small boil developed close to the meatus, which, however, did not give her much pain and disappeared rapidly.

At her last visit to me, just a month after the first, she reported that she was entirely free from pain, and the examination showed that the ear was again in its normal condition. I dismissed her as cured and did not see her during the following seven months.

On the 27th of January, 1885, I was requested to visit her at her house as she was unable to leave the bed. I saw her on the same day and learned from her physician, Dr. Bayles, that she had been delivered of a living child four weeks before; that the labor had been uncomplicated, and that she had been in good health till five days ago when she began to have pain in her left ear. The pain had steadily increased, notwithstanding the application of six leeches around the ear and the continuous use of poultices. On inquiry I also learned that in the interval between her last visit to me in June, 1884, and the present attack, she had had neither pain in, nor a discharge from either ear. I found her in bed with her head wrapped up in shawls. She was in a state of high excitement and complained greatly of pain and noise in her left ear. Her face was

very pale and covered with perspiration. The pulse was about 90 and small. She spoke in a much louder tone than formerly, and when her attention was called to this she stated that she was unable to hear her own voice.

On examining the *left ear*, I found the meatus completely closed by a large furuncle seated in the lower posterior wall. At its most prominent point the skin was broken, and on making gentle pressure with a probe on the swelling a drop of thin pus escaped from the opening. The anterior wall of the meatus and the tragus were also much swollen and very sensitive to the touch. There was also redness and œdema of the parts in front of, below and behind the auricle, for a short distance from it. The auricle did not project unusually from the head and no fluctuation could be detected in front or behind the ear. Even the most gentle handling of the auricle was extremely painful, and pressure made in front of the tragus and on the mastoid close to the insertion of the auricle caused the patient to cry out with pain. No attempt was made to introduce a speculum into the meatus. She was able to hear loud speech when the other ear was closed, and could hear the tick of the watch (normal distance 60 inches) a few inches from the ear, and also when placed on the mastoid.

The examination of the *right ear* showed the meatus and the external canal to be entirely healthy; the drum membrane was of greyish color, dull and sunken. Inflation of the middle ear by Politzer's method caused considerable bulging of the drum-membrane, especially of its upper posterior quadrant, and completely and permanently restored the hearing of this ear.

In the absence of symptoms indicative of serious disease of the middle ear, I felt justified in assuring the patient that the present attack was similar to the one from which she had suffered seven months before (furunculosis).

As the boils had already broken, I did not think it necessary to incise the swollen walls of the meatus, and advised the application of a warm solution of morphine by means of compresses to the ear and the internal administration of morphine in sufficient quantity to cause sleep. For the tubal catarrh I recommended daily inflation by Politzer's method.

On the first of February (five days after my first visit) I was asked to see the patient again. Since my previous visit she had had a "bilious attack" which had prevented her attendants from giving much attention to the treatment of the ear trouble. In the opinion of her medical attendant, Dr. Bayles, the vomiting was caused by the morphine. She was suffering less from pain in the left ear, but her general condition was not at all improved. The ear-ache still prevented refreshing sleep. I found that the swelling of the walls of the meatus had subsided considerably and the redness and œdema of the parts adjoining the auricle had almost entirely disappeared. Pressure on the mastoid process was no longer painful. I could now introduce a small speculum into the external meatus without giving the patient much pain. I found the inner half of the canal of normal dimensions, but its integument was covered with macerated epidermis. The drum-membrane was of greyish color, opaque, dull and very concave. Inflation by Politzer's method caused marked bulging, especially in the posterior half of the membrane. The hearing of this ear was not much improved. I recommended the substitution of instillation of a warm solution of morphine for the compresses to the auricle, and the internal administration of quinine in medium doses.

On February 4, I made my next visit, and found no material change in the patient's condition and continued the same treatment.

On February 8, I was asked to see her again. The pain

in the ear had greatly increased the previous night and still continued. The seat of the pain was described as very deep in the ear or in the head beyond the ear. The external canal was now of normal dimensions in its entire length and its integument was still covered here and there with scales of macerated epidermis. The mastoid region was neither red nor swollen and percussion of the same was not painful. Below the auricle was a swollen gland which was tender to the touch. The drum-membrane was in the condition previously described. The Eustachian tube was very permeable, as was shown by Valsalva's experiment. Being unable to account for the return of the pain by the development of new furuncles or an inflammation of the middle ear, I concluded that the pain was due to a diffuse inflammation of the canal, which was just beginning. I thought it best, however, to make sure that the pain was not due to the presence of a free exudation in the tympanic cavity, and therefore made a large incision in the posterior half of the drum-membrane. No fluid escaped from the opening, and on inflation of the middle ear by Politzer's method only air came through the incision. I advised that the instillation of warm morphine solution be discontinued for a day or two, and that quinine and morphine be given internally, and requested to be called in a day or two if the pain continued. I did not see her again till

February 14. On this occasion I saw her in consultation with the attending physician, Dr. Bayles and Dr. Alfred L. Loomis of New York. I learned that she had not complained of pain in the ear since my last visit, but had suffered very greatly from paroxysmal pain in the upper part of the head, and also in the spine. She had had no chill and the temperature had varied but little from the normal (I may here state that the temperature was at no time during the whole course of the disease more than two degrees above the normal). The ear was in the condi-

tion last described. The opening in the drum-membrane had closed again. There was no otorrhœa, and firm pressure on the mastoid caused no pain. Below the auricle there was still a swollen gland. The hearing of this ear was now more impaired than before. A very loud ticking watch was heard only on contact with the auricle or the mastoid. Tuning forks placed on the vertex were heard equally well on both sides. They were also heard when held in front of meatus and when placed on mastoid. With regard to the nature of the disease we came to the conclusion that it was a neurosis of the head. Aside from the intense pain in the head there were no symptoms present which would have justified us in making the diagnosis of meningitis. It was agreed to give morphine in sufficient quantity to subdue the pain.

I did not see the patient again, but learned from Dr. Bayles that she died on the 19th of February—three days after my last visit to her.

Autopsy. The autopsy was made in New Brunswick, Maine, by Dr. Alfred Mitchell, of New Brunswick, and Prof. S. H. Weeks, of Portland, Maine, several days after death. The notes kindly sent by Dr. Mitchell to Dr. Bayles state that "there was evidence of intense inflammation over the entire extent of the arachnoid and pia mater. Upon the left side there was found a thick accumulation of pus at anterior portion of cerebellum, where it rests upon the posterior surface of the petrous portion of the temporal bone. The left auditory and facial nerves were completely embedded in pus. Pus was also found upon the pons varolii. The cerebro-spinal fluid surrounding the medulla oblongata was mingled with pus. A small abscess about the size of a bean was found in the anterior border of the left lobe of the cerebellum, close to its junction with the pons. Lymph was found at the optic commissure and around third nerve. The mastoid cells

were filled with purulent fluid. Nothing was found in the middle ear (tympanic cavity) save a thin exudation. On minor and major sections of tympanic cavity very slight evidences of a preëxisting inflammation were found — in fact none. The ventricles were in normal condition and the choroid plexuses uninjected." Further particulars are wanting.

Remarks. The interest of this case lies in the absence of the usual objective symptoms of abscess of the mastoid process, and in the relationship between this disease and the circumscribed inflammation of the outer half of the external auditory canal.

It is true that redness and œdema of the covering of the mastoid process, close to the insertion of the auricle, and pain on pressure on this part was present when the furuncle was at its height. But these symptoms, as is well known, often enough accompany simple follicular inflammation of the external canal. They disappeared, moreover, with the furuncle, and did not return. The only point about the ear which remained sensitive to pressure after the boil had disappeared, was situated below the auricle where there was an enlarged gland. In the inner half of the external canal neither the upper nor the posterior wall was markedly swollen at any time. The macerated condition of the epithelial covering of the walls, I attributed to the action of warm solutions dropped into the ear. Pains deep in the ear and in the head beyond the ear, were the only symptoms pointing to serious disease of the ear. The pain was never referred to the mastoid region. The patient had no rigors, and fever was noticed only during the development of the furuncle.

Very severe pain deep in the ear which did not yield to milder remedies, occurring in cases of purulent inflammation of the middle ear has always been for me an indication for making an opening in the mastoid cells; in the

future I shall not hesitate to do this operation also in cases of continuous, very severe pain even when otorrhœa is absent.

Whether in this case the mastoiditis was the primary disease and the inflammation in the outer half of the external canal secondary, or *vice versa*, must remain undetermined, as the condition of the cortex of the mastoid process is not mentioned in the notes of the autopsy. It seems, however, not improbable that the mastoiditis resulted from an extension of the inflammation from the external canal to the mastoid cells. For, if the mastoiditis had existed previous to the development of the furuncle it would doubtless have manifested itself by pain in or about the ear before the boil appeared. On the other hand, the very rapid spread of the disease to the intracranial cavity would seem to favor the theory that the mastoiditis preceded the boil. I know of no other instance in which an abscess in the mastoid followed a simple inflammation in the outer half of the external canal.